July 15, 2002

MEMORANDUM TO: Christopher I. Grimes, Program Director
Policy and Rulemaking Program
Division of Regulatory Improvement Programs, NRR

FROM: Joseph L. Birmingham, Project Manager ***/RA/***
Policy and Rulemaking Program
Division of Regulatory Improvement Programs, NRR

SUBJECT: SUMMARY OF JUNE 13, 2002, MEETING WITH THE NUCLEAR ENERGY INSTITUTE (NEI) REGARDING NEI 97-06 - CATEGORY 2 MEETING

On June 13, 2002, Nuclear Regulatory Commission (NRC) staff met with representatives from the Nuclear Energy Institute (NEI) and industry at the NRC's office in Rockville, Maryland on industry initiative NEI 97-06. The purpose of the meeting was to discuss ongoing steam generator issues including legal and policy issues pertaining to the NEI steam generator generic license change package, a revised industry proposal in response to earlier staff comments concerning maximum inspection interval criteria to be included in the forthcoming revision 6 of the Electrical Power Research Institute steam generator examination guidelines, and the staff's request that the licensees for Sequoyah 2 and SONGs 2 submit technical specification amendments which would require inspection of tubes in only the upper region of the tube sheet region with methods capable of detecting circumferential cracks. Attachment 1 is a list of those attending the meeting.

The meeting began with introductions of those in attendance and proceeded to discussed the new issue regarding the GLCP. Janice Moore from the Office of the General Counsel (OGC) discussed the implications of the 1996 Perry decision to the proposed regulatory framework in the GLCP. Ms. Moore also responded to industry questions and clarified why the license amendment process is the appropriate vehicle when seeking NRC review and approval of changes to the tube integrity performance criteria, maximum inspection intervals, repair criteria, and repair methods. It was also noted that the license amendment process provides for the desired public participation consistent with the NRC's performance goal of improving public confidence. The staff noted that the consolidated line item improvement process (CLIIP) could be used to improve staff efficiency and reduce unnecessary licensee burden for some requests. NEI recommended that if a license amendment was required for such changes that both NEI and the NRC look for ways to make the process more efficient. Details of the staff's discussion are contained in Attachment 2.

NEI stated that performance criteria were key to steam generator reliability and may need to be in the TS, but felt that some criteria such as the inspection interval did not. A senior staff member indicated that the inspection interval was important and that the current industry methodology may not determine acceptable intervals. The staff member noted that numerous defects could be just below the criteria for repair and could grow to unacceptable limits before the next inspection.

NEI and NRC then discussed recent NRC actions concerning the inspection of the tubesheet region. A senior staff member presented a summary of the issue and the NRC plan for resolution. Details of the staff presentation are in Attachment 3. The steam generators at Sequoyah Unit 2 and SONGS Unit 2 are experiencing circumferential cracking in the tubesheet region. However, the licensee did not perform rotating coil inspection of the full length of the tubesheet region even though circumferential cracks were detected at the bottom of the zone inspected. The licensees performed supporting analyses (not reviewed by the staff) for the limited inspection scope and conclude that circumferential cracks outside the inspection zone do not impair tube integrity. The licensees concluded they were thus not required to inspect the entire tubesheet region.

The NRC explained that TS require inspection over the full length of the tube within the tubesheet on the hot leg side. The TS do not specify the inspection method but do specify the acceptance limits to be applied to the inspection results. Rotating coil probes provide the information needed to ascertain whether the acceptance criteria are met while bobbin coil probes do not. Therefore, it is implicit that rotating coil probes must be used over the full length of the tubesheet with active circumferential cracking .

The staff plans to issue a generic communication detailing the staff's position to ensure other licensees are aware of the staff's position. The staff expects that affected licensees would ensure their inspection scopes meet the requirements or would submit TS amendment request. The staff considers that a Notice of Enforcement Discretion is a potential option for operating plants where this creates an operability issue.

NEI then presented other steam generator issues as detailed in the NEI presentation material (Attachment 4).

Attachments: As stated

PROJ 689

cc: Jim Riley, NEI

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Attachment 1

Attendees for Meeting on Steam Generator Issues and Generic License Change Package NEI 97-06 June 13, 2002

NAME	Organization
Kevin Sweeney	Arizona Public Service
Jim Riley	NEI
Ellen Ginsberg	NEI
Dan Mayes	Duke Energy
Helen Cothron	TVA
Forrest Hundley	Southern Co.
Michael Short	S. California Edison
Greg Kammerdeiner	First Energy
Bob Exner	PG&E
Hermann Lagally	Westinghouse
Rick Mullins	Southern Co.
Robert Cullen	Entergy
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Russ Lieder	NAESCO
Lane Hay	SERCH Bechtel
Brad Corder	Ameren UE
Gary Henry	EPRI
Bob Keating	Westinghouse
Bob Dennig	NRC\NRR\RORP\TSS
William Beckner	NRC\NRR\RORP
Jim Davis	RES\DET\MEB
Eva Brown	NRC\DLPM\LPD2
Joseph Birmingham	NRC\NRR\RPRP
Edmund Sullivan	NRC\NRR\EMCB
Bill Bateman	NRC\NRR\EMCB
Louise Lund	NRC\NRR\EMCB
Emmett Murphy	NRC\NRR\EMCB
Maitri Banerjee	NRC\NRR\DLPM
Steve Long	NRC\NRR\DSSA\SPSB
Ken Karwoski	NRC\NRR\DE\EMCB
Janice Moore	NRC\OGC

New Issue re. NEI SG GLCP

By letter dated June 11, 2002, staff informed NEI of a significant issue concerning the NEI Steam Generator (SG) Generic License Change Package (GLCP).

Background - The issue relates to proposed admin TS which would require:

- Establishment and implementation of SG program to ensure tube integrity performance criteria are met.

- Condition monitoring at each inspection outage to ensure performance criteria met

- Establishment and implementation of performance criteria, maximum inspection intervals, tube repair limits, and tube repair methods as part of the SG program.

  – These parameters would be physically located outside TS.
  – Initial values would be reviewed and approved when licensees submit plant specific change packages.
  – Licenses could implement changes to these parameters subject to NRC staff review and approval, either on plant specific or generic basis.

Background (Continued):

- The intent of this approach was that:
  - changes to the parameters would not constitute TS amendments
  - most importantly, would permit implementation of changes that had been approved by NRC for generic applicability.

–

New Issue re. NEI SG GLCP

Policy/Legal Issues:

- Proposed approach would make the TS BASES (or other licensee controlled document containing the approved values of the aforementioned parameters) appear as though it were part of the TS, since staff review and approval needed to change.

- Approach sets up a change process outside the established 50.90 amendment process.

- Approach conflicts with the established iSTS bases control program which makes the BASES a licensee controlled document using 10 CFR 50.59 control.

- Approach is contrary to Commission's Perry decision

  – opportunity for requesting a hearing must be afforded in cases requiring NRC approval when such approval would grant greater operating authority or otherwise alter the original terms of the license.

- It is NRC policy that parameters which are safety significant and subject to NRC review and approval should be controlled through license amendment process.

New Issue re. NEI SG GLCP

Staff's Conclusions:

- Proposed TS in GLCP should be revised to identify the approved value of each of the aforementioned parameters.
  - Thus, changes to these parameters will necessitate a license amendment
    -- even in cases where licensee is proposing to implement a change defined in an industry document which has been reviewed and approved by NRC staff.
  - In cases where NRC has reviewed and approved industry documents which have generic applicability, the NRC Consolidated Line Item Improvement Process (CLIIP) can be used to expedite staff approval of plant specific amendments.

Sequoyah/SONGs Inspection Issue

Summary

- Sequoyah 2/SONGs 2 are experiencing active circumferential cracking in the tubesheet region.

- Current inspection practice at these units:

  – Bobbin inspection over full tube length
    -- Not capable or qualified for detection of circ cracks.

  – Rotating coil inspection from 2" above top of tubesheet to 5" below.
    -- Circ cracks detected to bottom of zone being inspected.
    -- However, licensee did not expand inspection deeper into tubesheet.
    -- Licensees performed supporting analyses (not reviewed by staff) for the limited inspection scope; licensees conclude that circ cracks outside inspection zone (i.e., deeper in the tubesheet) do not impair tube integrity. Thus, licensees conclude they are not required by tech spec to inspect further into tubesheet.

- Staff position:

  – Tech Specs explicitly require tube inspection over entire length of tube within thickness of tube sheet (on hot leg side).
    -- Licensee's do not have option of inspecting only portion of this length, even if they believe they have adequate safety basis.
    -- Need tech spec amendment

  – Tech specs do not define the inspection method. However the tech specs do define the acceptance limits (plugging limits) to be applied to the inspection results.
    -- It is implicit that the inspection must provide information to ascertain whether the acceptance criteria are met.
    -- Bobbin coils do not provide such information for circ cracks.

  – Licensees are required to apply methods capable of detecting the type of flaws which may potentially exist at each tube location where a tube inspection is required by the technical specifications.

  – For licensee's with active circ cracking in the tubesheet, exclusion of the lower region of the tubesheet from inspection for circ cracks is tantamount to implementing a de facto alternate tube repair criteria which maintains that all circ cracks in the lower region are acceptable, irrespective of depth and length.
    -- There may be a perfectly justifiable bases for justifying such an approach. However, this justification must be submitted as part of a technical specification amendment that would permit such an approach.

Issue Status:

- Sequoyah and SONGs agreed to submit technical specification amendments:
  - Staff approved one-cycle amendment for Sequoyah prior to startup.
  - SONGs is currently down and has submitted amendment request - under review.
- Generic implications:
  - Other plants with active circ cracking in tubesheet expansion region may be implementing inspection programs similar to Sequoyah/SONGs.
  - Operability issue

Plan for Resolution:

- Issue RIS defining staff's position.
- Affected licensees would revise their inspection scope in future inspections or would submit technical specification amendment.
- For operating plants where this issue creates operability issue, NOED is a potential option pending next scheduled inspection.

Steam Generator Issues

NRC Meeting

June 13, 2002

Agenda

- Introductions
- Steam Generator Examination Guidelines and NRC NDE Comments
- Generic License Change Package (GLCP)
- Recent NRC Actions Concerning Tubesheet Inspections
- Other SG Issues
- Future Actions

Revision 6
PWR SG Examination Guidelines

Significant Changes and Issues

Gary Henry

Background

- Rev. 6 draft was completed in April 2001 and received industry review during May 1- June 25, 2001
- 724 comments have been received from utilities, NRC, and vendors
- All comments were resolved and a second draft was sent for comment in October 2001
- 366 comments were received and resolved from utilities and vendors
- Current draft is May 8, 2002
- Currently going through the EPRI approval process

Section 3
Sampling Requirements for Prescriptive Based Examinations

Separate sampling requirements for 600MA, 600TT, and 690TT materials

<u>600MA :</u>

- Inspect 100% of tubes in each SG every 60 EFPM
- SG's shall be inspected each refueling outage

Section 3
Sampling Requirements for Prescriptive Based Examinations

600 TT:

- Given SGs are free from active degradation,
- Inspect 100% of tubes in each SG in 120, 90, 60, 60,…, EFPMs and with the following conditions and exceptions:
  - **Examine at least 50% of tubes in each SG by the refueling outage nearest the mid-point of the period and the remaining 50% by the refueling outage nearest the end of the period. However, during the first inspection period, examination of regions susceptible to stress corrosion cracking, (e.g. expansion transitions, non stress relieved low row u-bends, dents, dings) may be limited to 20% of the tubes in each SG at the refueling outage nearest the mid-point of the period and an additional 20% at the refueling outage nearest the end of the period.**

Section 3
Sampling Requirements for Prescriptive Based Examinations

600 TT (Continued):

- **No SG shall operate more than 48 EFPM without being inspected.**
- If an active damage mechanism is present, the tubing shall be subject to the same rules as Section 3.3.5 for Alloy 600 MA tubing. If subsequent examinations verify active damage mechanisms are not present, the alloy 600 MA rules still apply.

Section 3
Sampling Requirements for Prescriptive Based Examinations

- If evidence (e.g. tube pull, UT, alternate technique(s), historical review of baseline data) proves the damage mechanism was never present, the examination periodicity of this section may resume.

Section 3
Sampling Requirements for Prescriptive Based Examinations

690 Alloy:

- Given SG are free from active degradation,
- Inspect 100% of tubes in each SG in 144, 108, 72, 60, 60, 60,… EFPMs with the following conditions and exceptions:
  - Same as A 600TT
- No SG shall operate more than 72 EFPM without being inspected.

Section 3
Sampling Requirements for Prescriptive Based Examinations

- Section 3.7 Primary-To-Secondary Leakage
  - **Unexpected low level primary-to-secondary leakage that develops during operation is to be evaluated per the EPRI Primary-to-Secondary Leakage guidelines, EPRI TR-104788 latest revision. If the leakage has been detected but is less than the EPRI Primary-to-Secondary Leak Guidelines Action Level 1 (30 gpd) the steps of Section 5.5 should be considered at the next scheduled refueling outage. If the leakage is greater than Action Level 1 but less than the Action Levels 2 or 3 the steps of Section 5.5 shall be followed at**

Section 3
Sampling Requirements for Prescriptive Based Examinations

- Section 3.8 Secondary Side Visual Examination
  - The evaluation of loose parts shall contain the following elements:
    - Location and description of historical loose parts,
    - Description of those with associated wear indications,
    - Failure of control and monitoring of foreign objects and loose parts,
    - High flow, or susceptible areas,
    - Inspection limitations,
    - Categorization of probable causes, origins, and migration,
    - Trends for loose parts associated wear, and
    - Eddy current detectability issues.

Section 4
Sampling Requirements for Performance Based Examinations

- Performance based examination requirements continue to be a high priority goal
- Implementation of this section must be approved on either a plant specific or generic basis by the NRC before it is used to extend the inspection intervals prescribed by Section 3.

Section 5
Steam Generator Assessments

Section 5.2 Degradation Assessment

- Detection and sizing performance indices shall be documented in the degradation assessment
  - ETSS's are evolving, therefore the ETSS's in effect 6 months prior to the start of the examination shall be considered.
- A review of the degradation and operational assessments shall be performed prior to each refueling outage when steam generator primary side inspections are not scheduled, to validate the surveillance interval.

Section 5
Steam Generator Assessments

Section 5.2 Degradation Assessment, Cont'd

- If a damage mechanism is identified during the inspection and was not addressed in the current degradation assessment, then the degradation assessment shall be revised during the inspection.

SG Exam Guidelines, Rev 6

- Implementation plan
  - Document approval in June
  - Plant implementation within 6 months after issue (9/02) except:
    - If refueling outage within 6 months, an additional 3 months is allowed
    - Data quality and portions of site validation requirements (noise measurement) implemented within 1 year because of complexity of software development and qualification

NRC Comments on NDE Issues

Reference September 18, 2001
memo from E. Murphy to J. Riley

NRC NDE Comments

1. *The one fuel cycle limitation should be one fuel cycle or 24 EFPM, whichever is shorter. Similarly, the two cycle limitation should not exceed 48 EFPM and the three cycle limitation should not exceed 72 EFPM.*
   - Industry agrees. Section 3 in Rev.6 of the PWR SG Examination Guidelines removes the reference to "skipping" fuel cycles and establishes the limits of 24 EFPM for 600MA, 48 EFPM for 600TT, and 72 EFPM for 690TT as the maximum length of time that a SG can operate without being inspected.

NRC NDE Comments

2. *Active degradation mechanism*

- Rev 6 definition:

  •A combination of ten or more, new indications (≥20% TW) of thinning, pitting, wear (excluding loose part wear) or impingement and previous indications which display an average growth rate equal to or greater than 25% of the repair limit in one inspection-to-inspection Interval in any one SG.

  •One or more new or previously identified indications (≥20%TW) which display a growth greater than or equal to the repair limit in one inspection-to-inspection interval, or

  •Any crack indication (Outside diameter IGA/SCC or primary side SCC).

- The nature of loose parts does not fit the definition of Active Degradation Mechanism. The actions required upon the identification of loose part degradation are not the same as those that would be pursued in response to other forms of degradation.
- An evaluation is required that addresses programmatic and inspection limitations as well as the specifics of the actual condition. The results of this evaluation shall be considered in the degradation, condition monitoring, and the operational assessment.

NRC NDE Comments

2. *Active degradation mechanism (Cont'd)*
   - Industry agrees that growth rate should be defined on an inspection-to inspection-interval as defined in the above definition of Active Damage Mechanism. The application of growth rate (including growth rate adjustment) in defining acceptable operating interval is addressed in the EPRI SG Integrity Assessment Guidelines.

NRC NDE Comments

3. *For plants with Alloy 690 TT tubing, three cycle inspection intervals shall be preceded by a two cycle inspection interval.*
   - Preceding a three cycle interval by a two cycle interval is not necessary:
     - A 100% inspection to compare actual tube condition to their pre-service condition is performed at the first inspection interval
     - Tubes are in their best condition early in life. Operating history of SGs with alloy 600TT and 690TT tubes indicates that any problems that may eventually occur do not exhibit themselves until well after three cycles
   - All inspection intervals are to be supported by an operational assessment
   - The basis for the inspection intervals are provided in other responses

NRC NDE Comments

4. *Time to detectable cracking threshold*
   - Proposed inspection intervals are conservative with respect to operating experience with 600TT and 690TT materials
   - Expanded guidance for degradation assessments has been provided in revision 6 of the SG Examination Guidelines. The guidance includes consideration of industry experience

NRC NDE Comments

4. *Time to detectable cracking threshold Continued):*
   - SGMP meetings provide frequent opportunities for plants to exchange SG operating experience.
   - EPRI SG Degradation Database updates are required within 120 days
   - Use of a “time to detectable cracking threshold” tied to one plant does not take into account the unique nature of each SG’s operating conditions

NRC NDE Comments

5. *Adjusting the time to detectable cracking to account for experience*
   - See previous response

NRC NDE Comments

6. *Ligament tearing of volumetric flaws shall be considered "burst."*
   - NRC position is not consistent with the definition approved by the staff at a 7/24/99 meeting
   - NUREG/CR 5117 provides test data confirming the burst resistance of deep pit-like defects.
   - Adding requirements concerning leak rates above MSLB pressures is considered to be in excess of currently agreed to deterministic performance criteria.

NRC NDE Comments

7. *Utilize qualified NDE techniques for all potential degradation mechanisms and locations*
   - The industry agrees that qualified NDE techniques should be used. Section 3.1 of Rev. 6 of the PWR SG Examination Guidelines requires that all examinations be conducted with qualified techniques selected in accordance with the degradation assessment.

NRC NDE Comments

8. *Indications shall be considered service induced flaw indications in the absence of compelling evidence to the contrary*
   - Each of the signals encountered during a steam generator examination needs to be recognized and correctly classified
   - The signal analysis process that is intended to be conservative and is sufficient to determine if there are active damage mechanisms
   - All crack like indications are considered active damage mechanisms in accordance with the definition

NRC NDE Comments

9. *If primary-to-secondary leakage exceeds 5 gpd prior to shutdown for a refueling outage, guidance for "leaker forced outages" should be followed*
   - If leakage is less than 30 gpd, the guidance for "leaker forced outages" should be considered
   - If leakage is greater than 30 gpd, the guidance for "leaker forced outages" shall be followed
   - 5 gpd is not a acceptable threshold
     - The source of leakage this small may not be locatable
     - The threshold should be consistent with action levels in the PSL Guideline

NRC NDE Comments

1. *Provide detailed information on degradation experience with tubes and sleeves fabricated from Alloy 600 TT and 690 TT, both foreign and domestic.*

- The "Experience of US and Foreign PWR Steam Generators with Alloy 600TT and Alloy 690TT Tubes and Sleeves" supports the inspection intervals in rev 6
  - Single possible instance of SCC in US A 600TT tubing (Seabrook after 9.6 EFPY at 618 F)
    - Onset of cracking does not invalidate the inspection intervals in Rev 6
  - No instances of cracking in A 690TT tubing in US or foreign plants
  - No instances of cracking in A 600TT or A 690TT sleeves in US or foreign SGs
  - Some cracking in foreign A 600 TT tubing, however none of this experience directly applies to US plants

NRC NDE Comments

2. *Provide additional information concerning hundreds of reported SCC indications in 600 TT tubing worldwide and discuss whether there is a preponderance of evidence than none of these indications are actually SCC*
   - The "Experience of US and Foreign PWR Steam Generators with Alloy 600TT and Alloy 690TT Tubes and Sleeves" report addresses foreign experience
   - EPRI peer review process addressed indications in US plants

Peer Review Approach

- Assemble pulled tube data for alloy 600TT and alloy 600MA indications.
  - Purpose of MA was for sanity checks to assure that the disposition of the alloy 600TT indications would not compromise actual cracks.
- Gather the ECT data for those tubes that have had UT data to disposition the indications to benign status.

Peer Review Approach

- Collection of the eddy current data for those indications reported in the database as potential cracking by utilities for alloy 600TT tubes
- EPRI pre-analyzed the data and assembled a matrix for each indication and each frequency.
- Peer review is to determine if sufficient evidence is present to disposition an indication based on the knowledge from pulled tubes, ultrasonic or alternative techniques to a benign condition or stress corrosion crackling is determined to be present.

Peer Review : Details of the Data Used

- Data from 8 plants were acquired
- 2 of the 8 plants contained MA tubing
  - A total of 16 MA tubes were used, 11 of the 16 are pulled tubes
- 6 plants contained Alloy 600TT
  - A total of 76 alloy 600TT tubes were used, 3 of the 76 are pulled tubes, 6 are ECT signals verified by UT to be benign and 1 signal disappeared after sludge lancing.
  - 66 tubes contained indications in alloy 600TT material

Peer Review : Details of the Data Used

- The 66 tubes were presented to the peer review team to be dispositioned as crack or benign.

Peer Review Results

- 10 peers participated in the review
  - 5 utilities
  - 5 vendors
- 9 of the 10 believed all of the Alloy 600 TT signals were void of stress corrosion cracking
- Only 1 peer was stating “crack-like until proven otherwise”, for two tubes, additional information (UT, Tube pull, or alternative technique) could change his mind on Callaway indications R2-C6 and R2 C10.

Conclusions

- The one analyst that disagreed with the consensus, had participated in the original on site resolution that resolved the indication as crack-like.
- The results speak very clearly that the indications previously reported in Alloy 600TT tubing are not indications of stress corrosion cracking based on the results of the majority for this peer review.

NRC NDE Comments

3. *Submit revised, complete proposal for prescriptive limits on inspection intervals, including supporting definitions.*
   - See revision 6 of the SG Examination Guidelines and presentation on rev 6 changes

NRC NDE Comments

4. *Submit proposed industry protocol for ensuring that the initial occurrence of SCC, industry wide, for Alloy 600 TT or Alloy 690 TT is communicated to all applicable licensees.*

- See response to question 4 on the "Time to Detectable Cracking Threshold"

SG Program Generic License Change Package

SG Program GLCP

- Changed per NRC comments:
  - Added information on the maximum approved inspection interval into the SG Tube Integrity TS Bases
  - Changed Note to SR 3.4.13.2 to mean that the SR is not required prior to entry into MODES 3 or 4

SG Program GLCP

- Did not change per NRC comments:
  - Primary-to-secondary leakage surveillance frequency is tied to SG Program requirements
  - Retained Note 1 to SR 3.4.13.1 (RCS water inventory balance)
    - Approved by TSTF-116, rev 2

SG Program GLCP

- Structural integrity accident loading safety factor (1.4):
  - Industry continuing to review and develop final position
    - Effort to ensure consistency with design basis commitments and terminology
    - NEI to submit final definition by 7/02

SG Program GLCP

- NRR letter 6/10/02 (re: Perry Decision)
  - If the parameters are removed from the tech specs, why would a change (to those parameters) grant greater operating authority or be a change to the terms of the license?

Perry Decision

- The industry reads *Perry* to set out the criteria to be used in determining whether a license amendment is required.

- *Perry* states that a license amendment is not necessary, whether or not Staff approval is required if the licensee's proposed action does not *"provide greater operating authority"* or "*otherwise alter the original terms of a license."*

- *By merely ensuring that required technical standards are met, the Staff's approval does not alter the terms of the license, and does not grant the licensee greater operating authority. Such a review indeed enforces license requirements. As an enforcement policy matter, the Staff may wish to police some licensee-initiated changes before they go into effect.*

Perry Decision

- *To insist—as the Intervenors do—that the NRC staff may never require prior approval for any change or activity without effecting some sort of major licensing action, would frustrate the agency's ability to monitor licensees and enforce regulations. As we have already noted, not every change that occurs at a nuclear power plant, even if significant, represents a license amendment.*
- *Again, the key consideration should be: Did the agency action "supplement" the existing operating authority prescribed in the license?*
- "*As we have already noted, not every change that occurs at a nuclear plant, even if significant, represents a license amendment. [Citation omitted*]." The Commission identified as the *"key consideration"* whether the agency action would *"'supplement' the existing operating authority prescribed in the license."*

Recent NRC Actions Concerning Tubesheet Inspections

Tubesheet Inspections

- Issue identified at Sequoyah regarding extent of rotating coil inspections within the tubesheet
  - NRC questions regarding compliance and technical basis for inspection
  - Industry questions with respect to requirements for Staff approval of inspection programs

Inspection Requirements

- Tech Spec (typical)
  - Inspection of SG tube from point of entry (hot leg side) completely around U-bend to top support of the cold leg
    - No indication of RCPB
    - TS does not define inspection method/probe
    - TS does not define “qualified for detection”
    - Requires flaws in excess of 40% to be repaired
    - TS does not define “qualified for sizing”

Inspection Requirements

- GDCs specify requirements for RCPB design
  - GDC 14
    - Design and tested so as to have an extremely low probability of abnormal leakage, of rapidly propagating failure and of gross rupture
  - GDC 32
    - Permit inspection and testing of important areas and features to assess their structural and leak tight integrity
- Appendix B
  - Criterion 9 -Testing by qualified personnel and qualified procedures
  - Criterion 16 - Identify conditions adverse to quality

Inspection Program

- Staff indicates that inspection program must meet Appendix B
  - Inspection program at Sequoyah and others may not satisfy requirement and should be submitted for NRC approval and tech spec amendment
- Industry agrees that inspection programs must meet Appendix B
  - Contend that inspection programs meeting the requirements of NEI 97-06 and associated EPRI guidelines meet definition of Appendix B
    - Elements such as Sections 6, Appendix G and H meet Criterion 9
    - Elements such as DA, CMOA meet Criterion 16 ,
  - Actions taken consistent with elements of proposed GLCP

Industry Position

- Structural or leakage issue?
  - No – analysis and inspection program (bobbin plus RC) sufficient to ensure performance criteria
- ARC?
  - No – all detected defects removed from service
    - CMOA dictates assessment of undetected flaws left in service
- Compliance Issue?
  - No
    - TS requirements met
    - Program meets 10CFR50 Appendix A and B requirements
- If Staff disagrees – industry recommends that issue should be handled generically with all the correct assumptions identified
  - Similar to Generic Letters 95-03, 97-05

Other SG Issues

Outage Phone Calls

- Concerns:
  - Late identified questions cause problems with the efficient resolution
  - Creates additional burden on utility staff at critical time
  - Regulation through staff positions enforced by means of pressures to complete outage on time
- Suggested Improvements:
  - Support calls before the outage to identify concerns with inspection and condition monitoring plans in advance
  - Licensee will inform staff of exceptions to plan or unexpected results
  - NEI should be notified directly if generic issues are identified

Seabrook SG Tubing Indications

- EPRI Guidelines worked
  - Indications were found
  - Licensee took proper actions
- Performance criteria were met
- Industry is being informed
- SGMP is evaluating
  - Opportunity to assess the overall understanding of material performance and SG Program effectiveness
  - Will issue rev 6 as planned.
    - Interim guidance will be issued if necessary

TMI Plug Tube Sever Study

- Phase 1 of the EPRI study, damage mechanisms that would cause plugged tubes to sever and damage adjacent tubes, is in progress
- Include evaluation of Oconee 1 condition
- No safety significant findings to date
- Anticipate completion in late August
- Will meet with the staff at that time